

Notice of Allowability

Application No.

10/037,423

Examiner

Phuong Phu

Applicant(s)

ERTEL ET AL.

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 9/23/05.
2. ☒ The allowed claim(s) is/are 2-6,8-12 and 14-19.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

This Office Action is responsive to the Amendment filed on 9/23/05.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Kevin Correll, applicant's representative, on 10/18/05.

The application has been amended as follows:

IN THE CLAIMS:

-In claim 3, line 10, the limitation " $\xi_n(c)$ " is replaced with --a spatial signature vector similarity metric--.

-In claim 3, line 11, the limitation " $\xi_n(c)$ " is replaced with --spatial signature vector similarity metric--.

-In claim 9, line 9, the limitation " $\xi_n(c)$ " is replaced with --a spatial signature vector similarity metric--.

-In claim 9, line 10, the limitation " $\xi_n(c)$ " is replaced with --spatial signature vector similarity metric--.

-In claim 15, line 11, the limitation " $\xi_n(c)$ " is replaced with --a spatial signature vector similarity metric--.

-In claim 15, line 12, the limitation " $\xi_n(c)$ " is replaced with --spatial signature vector similarity metric--.

REASONS FOR ALLOWANCE

2. Claims 2-6, 8-12 and 14-19 are allowed.

3. The following is an examiner's statement of reasons for allowance:

References 6317612, 6671516, 6041237, 6539236, 6377819 and 5515378 are additionally cited because they are pertinent to the claimed invention.

-Regarding to independent claim 2, none of prior art of record discloses or teaches a method for operating a wireless communication system for assigning system resources to users, as claimed. Yun et al (5,886,988), previously cited, teaches the method except that he fails to teach the limitation "a metric used to measure the similarity of the spatial signature vectors of the SSs comprises the squared sum of the inner products of the SSs' SSV, that share the resource, with the current SS's SSV". It would not have been obvious for one skilled in the art to implement Yun et al in view of other prior art of record for leading such the implementation to the claimed invention.

-Regarding to independent claim 3, none of prior art of record discloses or teaches a method for operating a wireless communication system for assigning system resources to users, as claimed. Yun et al teaches the method except he fails to teach the limitation "the step of assigning includes calculating the magnitude of the squared inner product of the SSVS of all pairs of active SSs; using the calculated values for determining a spatial signature vector similarity metric for the resource; and assigning to a SS the system resource having a minimum

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spatial signature vector similarity metric". It would not have been obvious for one skilled in the art to implement Yun et al in view of other prior art of record for leading such the implementation to the claimed invention.

-Regarding to independent claim 8, none of prior art of record discloses or teaches a synchronous space division multiple access, code division multiple access communication system, as claimed. Yun et al teaches the system except that he fails to teach the limitation "a metric used by said data processor to measure the similarity of the spatial signature vectors of the SSs comprises the squared sum of the inner products of same code SSs' SSV with a current SS's SSV". It would not have been obvious for one skilled in the art to implement Yun et al in view of other prior art of record for leading such the implementation to the claimed invention.

-Regarding to independent claim 9, none of prior art of record discloses or teaches a synchronous space division multiple access, code division multiple access communication system, as claimed. Yun et al teaches the system except that he fails to teach the limitation "wherein said data processor operates to calculate the magnitude of the squared inner product of the SSVs of all pairs of active SSs, uses the calculated values for finding a spatial signature vector similarity metric for each spreading code that is not already used some specified maximum number of times, and assigns to a SS the spreading code with a minimum spatial signature vector similarity metric". It would not have been obvious for one skilled in the art to implement Yun et al in view of other prior art of record for leading such the implementation to the claimed invention.

-Regarding to independent claim 14, none of prior art of record discloses or teaches a method for operating a wireless communication system for assigning system resources to users,

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as claimed. Yun et al teaches the method except he fails to teach the limitation “a metric used to measure the similarity of the spatial signature vectors of the SSs comprises the squared sum of the inner products of the same code SSs' SSV with the current SS's SSV”. It would not have been obvious for one skilled in the art to implement Yun et al in view of other prior art of record for leading such the implementation to the claimed invention.

-Regarding to claim 15, none of prior art of record discloses or teaches a method for operating a wireless communication system for assigning system resources to users, as claimed. Yun et al teaches the method except he fails to teach the limitation “the step of assigning includes calculating the magnitude of the squared inner product of the SSVs of all pairs of active SSs; using the calculated values for determining a spatial signature vector similarity metric for each spreading code that is not already used some specified maximum number of times; and assigning to a SS the spreading code with a minimum spatial signature vector similarity metric”. It would not have been obvious for one skilled in the art to implement Yun et al in view of other prior art of record for leading such the implementation to the claimed invention.

-Regarding to independent claim 19, none of prior art of record discloses or teaches a method for operating a communication system wherein the method comprises steps of calculating the magnitude of squared inner product of spatial signature vectors of pairs of active users; using the calculated values of the magnitude of the squared inner product of the spatial signature vectors for determining a spatial signature vector similarity metric for spreading codes not already in use some maximum number of times; and assigning a spreading code to a user that minimizes the spatial signature vector similarity metric; in combinations with other limitations recited in the claim.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Phu whose telephone number is 571-272-3009. The examiner can normally be reached on M-F (6:30-2:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phuong Phu

Phuong Phu
10/18/05

**PHUONG PHU
PRIMARY EXAMINER**

Phuong Phu
Primary Examiner
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